

CLAIMS

- 1) Feeding device of chocolates and similar products (100) for a wrapping machine characterized in that includes:
 - 5 - a first belt means (13), which has a continuous advance motion, supports and moves a plurality of products (100), aligned and arranged in a single line at mutual contact;
 - a second belt means (14), aligned downstream the first belt means (13), having an alternate advance motion and associated to holding means (15) of the product (100);
 - a positioning wheel (9) rotating, facing the second belt means (14) immediately downstream the holding means (15) and having angularly equidistant a plurality of pliers means (11) for gripping the product (100);

10 the second belt means (14) moves the products (100), reciprocally spaced, from a picking condition (A), in which the second belt means (14) receives the product (100) from the first belt means (13), through moving conditions (M), in which the holding means (15) keep each product (100) fixed to the second belt means (14), to a transfer condition (T), in which the second belt means (14) is motionless and the product (100), not constrained thereto anymore, is grasped by a pliers means (11) of the positioning wheel (9), which moves the product (100) with circular motion, from the transfer condition (T) to a release condition (R) in which the wheel (9) is motionless and the pliers means (11) is opened for transferring 15 the product (100) to the wrapping machine.

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 - 2) Device according to claim 1 characterized in that includes a third belt means (16) aligned upstream the first belt means (13), having a continuous advance motion.
 - 25 3) Device according to claim 2 characterized in that the first belt means (13) has a translation speed lower than the speed of third belt means (16) and higher than the average translation speed of second belt means (14).
 - 30 4) Device according to claim 1 characterized in that the holding means (15) includes at least an air suction means (17) connected through duct means (19) to at least an opening (18) of second belt means (14), in order to hold by suction each product (100) supported by the second belt means (14).
 - 35 5) Device according to claim 4 characterized in that the suction means (17) consists of a vacuum pump or a suction fan.

- 6) Device according to claim 4 characterized in that the opening (18) includes a plurality of through holes carried out on the second belt means (14).
- 7) Device according to claim 4 characterized in that the second belt means (14) consists of a couple of conveyor belts (22) parallel and transversally spaced apart by at least the opening (18), shaped as longitudinal slot.
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- 8) Device according to claim 4 characterized in that the duct means (19) has an elongated shape and includes a suction mouth (23) in flow communication with at least the opening (18).
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- 9) Device according to claim 8 characterized in that the duct means (19) include at least an inner duct having a divergent shape, starting from the suction mouth (23) up to the connection with the suction means (17).
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- 10) Device according to claim 1 characterized in that includes at least sensor means first (20) and second (25), of optical or inductive or capacitive type, fit for sensing the presence of products (100) respectively in correspondence of the first belt means (13) and of the second belt means (14).
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- 11) Device according to claim 1 characterized in that the second belt means (14) is rotated by an electric motor (21) of brushless type, controlled in position, speed and acceleration.
- 12) Device according to claim 1 and 2 characterized in that that the belt means, first (13) and third (16), are rotated by at least a respective ratio-motor (24).
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- 13) Device according to claim 1 characterized in that the positioning wheel (9) includes at least four pliers means (11) mutually positioned at 90° and fixed to the wheel (9) with an orientation almost tangential to a circumference inscribed in the positioning wheel (9).
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- 14) Device according to claim 1 characterized in that the positioning wheel (9) includes a first column (61) fixed to the device (1) and rotatably supporting a second column (62) and a third column (63), coaxial thereto and independently rotating on a vertical axis.
- 35 15) Device according to claims 13 and 14 characterized in that each pliers means (11) is fixed,

through a support plate (68), to the third column (63) and includes a couple of mobile tines (12), symmetrically rotating between a closing condition (C), in which said tines (12) are at the minimum mutual distance for gripping a product (100), to an opening condition (D), in which they are at the maximum mutual distance for releasing said product (100).

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16) Device according to claim 15 characterized in that each pliers means (11) includes transmission means (65) connected to control means (64) of the second column (62), these last ones being fit to open and close the mobile tines (12) of each pliers means (11), through the rotation of said second column (62).

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17) Device according to claim 16 characterized in that each transmission means (65) includes at least a pivot (67), slidably supported by third column (63), connected to the mobile tines (12) of the respective pliers means (11) through a pinion-rack connection, and slidably engaged by sliding rolls (66) to a cam profile of the control means (64).

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18) Device according to any of the preceding claims characterized in that is totally controlled by electronic calculation and control means fit to control the phase relations at least among the belt means (13, 14, 16), the positioning wheel (9) and the pliers means (11).